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EXAMINER WONG, EDNA				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/584,068

Applicant(s)

SCHNETZ ET AL.

Examiner

EDNA WONG

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

This is in response to the Amendment dated July 21, 2008. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Response to Arguments

Drawings

Figures 1-5 should have been designated by a legend such as --Prior Art-- because only that which is old is illustrated.

The drawings were received on July 21, 2008. These drawings are acceptable.

Specification

I. The abstract of the disclosure has been objected to because the word "said" is used in line 2.

The objection of the abstract of the disclosure has been withdrawn in view of Applicants' amendment.

II. The disclosure has been objected to because of minor informalities.

The objection of the disclosure has been withdrawn in view of Applicants' amendment.

Claim Objections

Claim 1 has been objected to because of minor informalities.

The objection of claim 1 has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 112

Claims 1-5 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection of claims 1-5 under 35 U.S.C. 112, second paragraph, has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 103

I. Claims 1-2 and 5 have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Allen** (US Patent No. 2,719,820) in combination with **Botts et al.** (US Patent No. 5,776,327).

The rejection of claims 1-2 and 5 under 35 U.S.C. 103(a) as being unpatentable over Allen in combination with Botts et al. has been withdrawn in view of Applicants' amendment.

II. Claims 3 and 4 have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Allen** (US Patent No. 2,719,820) in combination with **Botts et al.** (US

Patent No. 5,776,327) as applied to claims 1-2 and 5 above, and further in view of **Schober** (US Patent No. 4,164,454).

The rejection of claims 3 and 4 under 35 U.S.C. 103(a) as being unpatentable over Allen in combination with Botts et al. as applied to claims 1-2 and 5 above, and further in view of Schober has been withdrawn in view of Applicants' amendment.

Response to Amendment

Specification

The disclosure is objected to because of the following informalities:

page 2, line 13, the word "widthand/or" should be amended to the words -- with and/or --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

I. Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1

lines 9-10, recite “of the tin anodes elongated generally parallel to the direction of movement of the facing moving strip”. Applicants’ specification discloses “designed and positioned in such a way that the anode is closer to the strip at the bottom to compensate for ohmic losses in the anode and strip” (page 7, lines 12-13).

What is the scope of “generally parallel”? This includes parallel.

lines 11-12, recite “moveable edge masks elongated generally parallel to the direction of movement of the facing moving strip”. Applicants’ specification discloses “designed and positioned in such a way that the anode is closer to the strip at the bottom to compensate for ohmic losses in the anode and strip” (page 7, lines 12-13).

What is the scope of “generally parallel”? This includes parallel.

Claim 6

lines 1-2, recites “wherein the transverse overlap of the edge mask and strip ranges from 30 to 60 mm”. Applicants’ specification discloses “(corresponding to an overlap with the strip of 30, 45 and 60 mm respectively)” [page 8, lines 13-18].

“30, 45 and 60 mm respectively” is not a range.

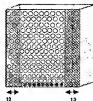
Claim 7

lines 1-2, recite “wherein the edge masks move to adjust lateral overlap from a

distance from the plating line”.

Claim 8

lines 1-2, recite “wherein a remainder of space on the front wall between the moveable edge masks is open”. What is the scope of “open”? It is not necessarily what is disclosed in Applicants’ specification:

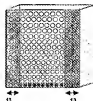


(Applicants’ Fig. 7).

Claim 10

lines 1-3, recite “wherein the edge portions of the wall of the tin anodes are elongated generally vertically and the moveable edge masks are elongated generally vertically”.

What is the scope of “generally vertically”? Applicants’ specification discloses elongated vertically:



(Applicants’ Fig. 7).

Claim 11

lines 1-2, recite “wherein the longitudinal axis of the moving strip facing the front wall does not oppose the moveable edge masks”.

Applicants’ specification, pages 1-8, does not disclose the above claim limitations with reasonable clarity. Thus, there is insufficient written description to inform a skilled artisan that applicant was in possession of the claimed invention as a whole at the time the application was filed.

II. Claims 6-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6

line 1, “the transverse overlap” lacks antecedent basis.

line 2, “the edge mask” (singular) lacks antecedent basis.

Claim 7

line 2, “the plating line” lacks antecedent basis.

Claim 8

line 2, “the front wall between the movable edge masks” lacks antecedent basis.

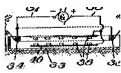
Claim Rejections - 35 USC § 103

I. Claims **1-2, 5-6 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nachtman** (US Patent No. 1,991,817) in combination with **Botts et al.** (US Patent No. 5,776,327).

Nachtman teaches a process for high speed metal strip electroplating of a moving strip comprising:

plating the moving strip (= a strip or ribbon of steel) [page 1, lines 12-18] by tin anodes **38** (= tin bars) [page 2, lines 37-39] facing the strip into an electroplating solution (= a suitable electrolyte such as sodium stannate, sodium hydroxide, sodium acetate, etc.) [page 2, lines 37-39], and depositing tin on at least part of the strip acting as a cathode (= electro-deposition tin is applied to and made to adhere to all of the surfaces of the steel bars in an evenly distributed amount and in whatever thickness of film or plating may be desired) [page 2, lines 55-59],

wherein each anode comprises an anode having a front wall facing a side of the

moving strip (= ) [Fig. 1].

The process of Nachtman differs from the instant invention because Nachtman does not disclose the following:

a. Wherein the anodes are anodically dissolving tin anodes, as recited in claim 1.

b. Wherein the depositing is depositing anodically dissolved tin from the tin anodes, as recited in claim 1.

c. Wherein each anode comprises an anode basket, as recited in claim 1.

d. Wherein the tin of the tin anodes is supplied to the electroplating solution in the form of tin pellets held in each said anode basket, as recited in claim 1.

Nachtman teaches that the tin bars 38, may rest upon a rack consisting of copper bars **40** with which the conductor **39** is connected (page 2, lines 52-54).

Like Nachtman, *Botts* teaches electrolytic tinning (= the electroplating metal particles comprise tin) [col. 2, lines 40-42; and col. 5, claims 1 and 5]. *Botts* teaches that tin is supplied to the electroplating solution in the form of pellets (= anode particles) [col. 2, lines 40-42] held in an anode basket **10** (col. 2, lines 28-31; and col. 3, lines 53-56),

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the tin bars described by Nachtman with (a) to (d) above because the anode basket disclosed by *Botts* would have been functionally and mechanically equivalent for electrotinning the moving strip or ribbon of steel disclosed by Nachtman (MPEP §§ 2144.06 and 2144.07).

The selection of old parts to operate in new environments in order to achieve the same results was held to have been obvious. *In re Ross* 105 USPQ 237. And the substitution of known equivalent structures was held to have been obvious. *In re Ruff* 118 USPQ 343 (CCPA 1958).

Furthermore, *Botts* teaches that his anode basket is applicable for use with any

electroplating apparatus and process in which achieving a uniform plating thickness is desired (col. 3, lines 49-52; and col. 4, line 65 to col. 5, line 3).

e. Wherein edge portions of the wall of the tin anodes elongated generally parallel to the direction of movement of the facing moving strip are masked out using adjustable masking means comprising moveable edge masks elongated generally parallel to the direction of movement of the facing moving strip, the adjustable masking means controlled and guided dependent on strip width and/or tin coating thickness distribution, as recited in claim 1.

Botts teaches wherein part of the tin anodes is masked out using adjustable masking means (= preferably, the step of masking selected portions of an anode basket comprises covering the anode basket with a non-conductive frame, placing a plurality of non-conductive plates on the frame, and adjusting the position of each of the plurality of non-conductive plates on the frame to achieve a desired electric field distribution) [col. 2, line 65 to col. 3, line 3]. A unique apparatus is provided for adjusting the electric field between the cathode and the anode of an electroplating apparatus. By adjusting the number and location of non-conducting plates **32** along frame **22**, the electric field may be manipulated thereby to produce a desired electric field distribution and to produce a controlled variable plating thickness (col. 4, line 56 to col. 5, line 3).



Thus, resting the anode basket **10** disclosed by Botts (=) [Fig. 5] upon the rack consisting of copper bars **40** with which the conductor **39** is connected disclosed by Nachtman (page 2, lines 52-54) would have situated edge portions of the wall of the tin anodes elongated generally parallel to the direction of movement of the facing moving strip masked out using adjustable masking means comprising moveable edge masks **32** elongated generally parallel to the direction of movement of



the facing moving strip (=) [Nachtman, Fig. 1].

As to the adjustable masking means controlled and guided dependent on strip width and/or tin coating thickness distribution, the Applicant has a different reason for, or advantage resulting from doing what the prior art relied upon has suggested, it is noted that it is well settled that this is not demonstrative of nonobviousness. *In re Kronig* 190 USPQ 425, 428 (CCPA 1976); *In re Linter* 173 USPQ 560 (CCPA 1972); the prior art motivation or advantage may be different than that of Applicants while still supporting a conclusion of obviousness. *In re Wiseman* 201 USPQ 658 (CCPA 1979); *Ex parte Obiaya* 227 USPQ 58 (Bd. of App. 1985) and MPEP § 2144.

f. Wherein the masking means comprise a shutter or blind, as recited in claim 2.

g. Wherein a remainder of space on the front wall between the moveable edge masks is open, as recited in claim 8.

Botts teaches that the masking means comprise a shutter or blind (= a plurality of non-conductive plates **32**); and a remainder of space on the front wall between the



moveable edge masks **32** is open (=) [col. 4, lines 23-28; and Fig. 5].

h. Wherein an automated supply system is provided to add the tin pellets to the anode basket, as recited in claim 5.

Nachtman discloses a continuous electroplating process (page 1, lines 12-18; and Fig. 1). Botts teaches an anode basket for electroplating a workpiece (col. 3, lines 5-13).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process described by the Nachtman combination with wherein an automated supply system is provided to add tin pellets to the anode basket because when the tin anode particles disclosed by Botts (col. 2, lines 40-42; and col. 5, claims 1 and 5) are depleted in the continuous electroplating process disclosed by Nachtman, one having ordinary skill in the art has the knowledge and skill to add more tin anode particles to the anode basket to provide for the continuous operation of the coating line.

As to an automated supply system, the provision of mechanical or automated

means to replace manual activity was held to have been obvious. *In re Venner* 120 USPQ 192; and MPEP § 2144.04(III).

i. Wherein the transverse overlap of the edge mask and strip ranges from 30 to 60 mm, claim 6.

Botts teaches that by varying the location of the plate relative to the frame, the current emanating from the anode is advantageously manipulated to achieve the desired uniform deposit of plating material on the workpiece (col. 2, lines 43-52).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the transverse overlap of the edge mask and strip described by the Nachtman combination with wherein the transverse overlap of the edge mask and strip ranges from 30 to 60 mm because the transverse overlap of the edge mask and strip is a result-effective variable and one skilled in the art has the skill to calculate the transverse overlap of the edge mask and strip that would have determined the success of the desired reaction to occur, e.g., to achieve the desired uniform deposit of plating material on the workpiece (MPEP § 2141.03 and § 2144.05(II)(B)).

Varying the location of the plates disclosed by Botts relative to the frame would have also varied the location of the plates relative to the strip.

II. Claims **3 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Nachtman (US Patent No. 1,991,817) in combination with **Botts et al.** (US Patent No. 5,776,327) as applied to claims 1-2, 5-6 and 8 above, and further in view of **Schober** (US Patent No. 4,164,454).

Nachtman and Botts are as applied above and incorporated herein.

The process of Nachtman differs from the instant invention because Nachtman does not disclose the following:

- a. Wherein the tin pellets are electrically contacted via a current collector made of a material with a low electrical resistance allowing for good electrical contact with the tin pellets and being electrochemically inert in the electrolyte, as recited in claim 3.
- b. Wherein the anode basket is the current collector, as recited in claim 4.

Nachtman teaches that the tin bars **38**, may rest upon a rack consisting of copper bars **40** with which the conductor **39** is connected (page 2, lines 52-54).



Botts teaches that the anode basket is the current collector (=) [col. 4, lines 40-48; and Fig. 4].

Like Nachtman, **Schober** teaches a process for the continuous electroplating of a metallic strip (col. 5, lines 4-16). Like Botts, Schober teaches an anode basket (col. 3, lines 52-56).

Schober teaches that the pellets are electrically contacted (= holding pellets of the metals to be plated) via a current collector (= an anode basket **66**) made of a material with a low electrical resistance allowing for good electrical contact with the tin pellets and being electrochemically inert in the electrolyte (= preferably formed of titanium) [col. 3, lines 52-56].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the tin pellets described by the Nachtman combination with wherein the tin pellets are electrically contacted via a current collector made of a material with a low electrical resistance allowing for good electrical contact with the tin pellets and being electrochemically inert in the electrolyte; and wherein the anode basket is the current collector because an anode basket, preferably formed of titanium and holding pellets of the metal to be plated, as well as masks to control plating uniformly, if required, is a conventional structure for an anode basket in the process for the continuous electroplating of a metallic strip as taught by Schober (col. 3, lines 52-56).

Furthermore, Nachtman teaches that the tin bars **38**, may rest upon a rack consisting of copper bars **40** with which the conductor 39 is connected (page 2, lines 52-54).

III. Claims **9-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nachtman** (US Patent No. 1,991,817) in combination with **Botts et al.** (US Patent No.

5,776,327) as applied to claims 1-2, 5-6 and 8 above, and further in view of

Allen (US Patent No. 2,719,820).

Nachtman and Botts are as applied above and incorporated herein.

The process of Nachtman differs from the instant invention because Nachtman does not disclose the following:

- a. Wherein the anode has a top and a bottom and the anode is closer to the strip at the bottom than at the top, as recited in claim 9.
- b. Wherein the edge portions of the wall of the tin anodes are elongated generally vertically and the moveable edge masks are elongated generally vertically, as recited in claim 10.

Nachtman teaches that from the guide device the strips pass horizontally (page 1, lines 53-54).

Like Nachtman, *Allen* teaches electroplating a continuous strip (col. 1, lines 63-65). *Allen* teaches passing the strip **S** vertically through the electrolytic cell **10** (Fig. 1). *Allen* teaches wherein the anode **16** has a top and a bottom and the anode is closer to the strip at the bottom than at the top (Fig. 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the edge portions and the moveable edge masks described by the Nachtman combination with wherein the anode has a top and a bottom and the anode is closer to the strip at the bottom than at the top; and wherein the edge portions of the wall of the tin anodes are elongated generally vertically and the

moveable edge masks are elongated generally vertically because this is a conventional electrolytic cell configuration in the art of electroplating a moving metal strip with tin as taught by Allen (col. 1, line 71 to col. 2, line 6; and Fig. 1).

c. Wherein the longitudinal axis of the moving strip facing the front wall does not oppose the moveable edge masks, as recited in claim 11.



Botts teaches open spaces between the moveable edge masks (=) [Fig. 5]. Thus, portions of the longitudinal axis of the moving strip facing the front wall would have not opposed the moveable edge masks.

IV. Claims 1-2 and 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nachtman** (US Patent No. 1,991,817) in combination with **Kinghorn** (US Patent No. 5,454,929) and **Delfrate et al.** (US Patent No. 5,582,708).

Nachtman teaches a process for high speed metal strip electroplating of a moving strip comprising:

plating the moving strip (= a strip or ribbon of steel) [page 1, lines 12-18] by tin anodes 38 (= tin bars) [page 2, lines 37-39] facing the strip into an electroplating solution (= a suitable electrolyte such as sodium stannate, sodium hydroxide, sodium acetate, etc.) [page 2, lines 37-39], and depositing tin on at least part of the strip acting as a cathode (= electro-deposition tin is applied to and made to adhere to all of the

surfaces of the steel bars in an evenly distributed amount and in whatever thickness of film or plating may be desired) [page 2, lines 55-59],

wherein each anode comprises an anode having a front wall facing a side of the



moving strip (= [Fig. 1].

The process of Nachtman differs from the instant invention because Nachtman does not disclose the following:

- a. Wherein the anodes are anodically dissolving tin anodes, as recited in claim 1.
- b. Wherein the depositing is depositing anodically dissolved tin from the tin anodes, as recited in claim 1.
- c. Wherein each anode comprises an anode basket, as recited in claim 1.
- d. Wherein the tin of the tin anodes is supplied to the electroplating solution in the form of tin pellets held in each said anode basket, as recited in claim 1.

Nachtman teaches that the tin bars 38, may rest upon a rack consisting of copper bars 40 with which the conductor 39 is connected (page 2, lines 52-54).

Like Nachtman, *Kinghorn* teaches electroplating metal on a ribbon 30 (col. 7, lines 16-23). *Kinghorn* teaches that the anodes 27 are typically wire screens or baskets. An anode basket is generally made of a titanium screen and contains chunks of metal which will be deposited (col. 6, line 61 to col. 7, line 2; and Fig. 4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the tin bars described by Nachtman with (a) to (d) above because the anode basket disclosed by Kinghorn would have been functionally and mechanically equivalent for electroplating the moving strip or ribbon of steel disclosed by Nachtman (MPEP §§ 2144.06 and 2144.07).

The selection of old parts to operate in new environments in order to achieve the same results was held to have been obvious. *In re Ross* 105 USPQ 237. And the substitution of known equivalent structures was held to have been obvious. *In re Ruff* 118 USPQ 343 (CCPA 1958).

e. Wherein edge portions of the wall of the tin anodes elongated generally parallel to the direction of movement of the facing moving strip are masked out using adjustable masking means comprising moveable edge masks elongated generally parallel to the direction of movement of the facing moving strip, the adjustable masking means controlled and guided dependent on strip width and/or tin coating thickness distribution, as recited in claim 1.

Like Nachtman, *Delfrate* teaches continuously electroplating a metal strip (col. 1, lines 6-8). *Delfrate* teaches that said active surface of each immersed anode is bordered on each of said two opposite edges by a mask having, along said corresponding edge and in front of said running path, an electrically insulating surface closer to said running path than said edge (col. 1, line 62 to col. 2, line 17; and Fig. 1).

The anodes are soluble (col. 6, lines 24-26).

Each panel-shaped mask **4A**, **4B** extends along one corresponding edge **3A**, **3B** of the active surface of the anode **3** and is arranged in a plane approximately parallel to the strip running path (col. 3, lines 35-40).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the anode baskets described by the Nachtman combination with wherein edge portions of the wall of the tin anodes elongated generally parallel to the direction of movement of the facing moving strip are masked out using adjustable masking means comprising moveable edge masks elongated generally parallel to the direction of movement of the facing moving strip, the adjustable masking means controlled and guided dependent on strip width and/or tin coating thickness distribution because the masks bordering the anodes of the electroplating cells of the installation would have caused an abrupt variation in the current density at the inlet and at the outlet of the various anodes of the installation, something which makes it possible to ensure plating under more uniform current density conditions, guaranteeing a constant alloy composition through the thickness of the layer as taught by Delfrate (col. 6, lines 6-13).

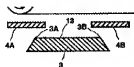
As to the adjustable masking means controlled and guided dependent on strip width and/or tin coating thickness distribution, the Applicant has a different reason for, or advantage resulting from doing what the prior art relied upon has suggested, it is noted that it is well settled that this is not demonstrative of nonobviousness. *In re Kronig*

190 USPQ 425, 428 (CCPA 1976); *In re Linter* 173 USPQ 560 (CCPA 1972); the prior art motivation or advantage may be different than that of Applicants while still supporting a conclusion of obviousness. *In re Wiseman* 201 USPQ 658 (CCPA 1979); *Ex parte Obiaya* 227 USPQ 58 (Bd. of App. 1985) and MPEP § 2144.

f. Wherein the masking means comprise a shutter or blind, as recited in claim 2.

g. Wherein a remainder of space on the front wall between the moveable edge masks is open, as recited in claim 8.

Delfrate teaches that the masking means comprise a shutter or blind **4A, 4B** (= masks); and a remainder of space on the front wall between the moveable edge masks



is open (=) [Fig. 1].

h. Wherein an automated supply system is provided to add the tin pellets to the anode basket, as recited in claim 5.

Nachtman discloses a continuous electroplating process (page 1, lines 12-18; and Fig. 1). Kinghorn teaches electroplating metal on a ribbon **30** (col. 7, lines 16-23).

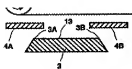
It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the process described by the Nachtman combination with wherein an automated supply system is provided to add tin pellets to

the anode basket because when chunks of metal disclosed by Kinghorn (col. 6, line 61 to col. 7, line 2) are depleted in the continuous electroplating process disclosed by Nachtman, one having ordinary skill in the art has the knowledge and skill to add more chunks of tin metal to the anode basket to provide for the continuous operation of the coating line.

As to an automated supply system, the provision of mechanical or automated means to replace manual activity was held to have been obvious. *In re Venner* 120 USPQ 192; and MPEP § 2144.04(III).

i. Wherein the transverse overlap of the edge mask and strip ranges from 30 to 60 mm, as recited in claim 6.

Delfrate teaches a transverse overlap of the edge mask and strip (=



). [Fig. 1].

The transverse overlap inherently has a range, although not disclosed, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the transverse overlap of the edge mask and strip described by the Delfrate with wherein the transverse overlap of the edge mask and strip ranges from 30 to 60 mm because changes in the transverse overlap may impart patentability to a process if the ranges claimed produce new and unexpected results which are different in kind and not merely in degree from results of the prior art, such ranges are termed

"critical" ranges and Applicant has the burden of proving such criticality; even though Applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within capabilities of one skilled in the art; more particularly, where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. *In re Aller*, 220 F2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and MPEP § 2144.05.

j. Wherein the edge masks move to adjust lateral overlap from a distance from the plating line, as recited in claim 7.

Delfrate teaches that the amount of overlap of the mask **4A, 4B** with respect to the corresponding edge **3A, 3B** of the anode **3** is commonly less than 1 cm (col. 4, lines 21-23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the edge masks described by the Nachtman combination with wherein the edge masks move to adjust lateral overlap from a distance from the plating line because adjusting the amount of overlap of the mask **4A, 4B** with respect to the corresponding edge **3A, 3B** of the anode **3** would have also adjust lateral overlap of the edge masks from a distance from the plating line.

V. Claims **3 and 4** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nachtman** (US Patent No. 1,991,817) in combination with **Kinghorn** (US Patent No.

5,454,929) and **Delfrate et al.** (US Patent No. 5,582,708) as applied to claims 1-2 and 5-8 above, and further in view of **Schober** (US Patent No. 4,164,454).

Nachtman, Kinghorn and Delfrate are as applied above and incorporated herein.

The process of Nachtman differs from the instant invention because Nachtman does not disclose the following:

- a. Wherein the tin pellets are electrically contacted via a current collector made of a material with a low electrical resistance allowing for good electrical contact with the tin pellets and being electrochemically inert in the electrolyte, as recited in claim 3.
- b. Wherein the anode basket is the current collector, as recited in claim 4.

Nachtman teaches that the tin bars **38**, may rest upon a rack consisting of copper bars **40** with which the conductor **39** is connected (page 2, lines 52-54).

Like Nachtman, *Schober* teaches a process for the continuous electroplating of a metallic strip (col. 5, lines 4-16). Schober teaches that the pellets are electrically contacted (= holding pellets of the metals to be plated) via a current collector (= an anode basket **66**) made of a material with a low electrical resistance allowing for good electrical contact with the tin pellets and being electrochemically inert in the electrolyte (= preferably formed of titanium) [col. 3, lines 52-56].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the tin pellets described by the Nachtman combination with wherein the tin pellets are electrically contacted via a current collector

made of a material with a low electrical resistance allowing for good electrical contact with the tin pellets and being electrochemically inert in the electrolyte; and wherein the anode basket is the current collector because an anode basket, preferably formed of titanium and holding pellets of the metal to be plated, as well as masks to control plating uniformly, if required, is a conventional structure for an anode basket in the process for the continuous electroplating of a metallic strip as taught by Schober (col. 3, lines 52-56).

Furthermore, Nachtman teaches that the tin bars **38**, may rest upon a rack consisting of copper bars **40** with which the conductor 39 is connected (page 2, lines 52-54).

VI. Claims **9-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Nachtman** (US Patent No. 1,991,817) in combination with **Kinghorn** (US Patent No. 5,454,929) and **Delfrate et al.** (US Patent No. 5,582,708) as applied to claims 1-2 and 5-8 above, and further in view of **Allen** (US Patent No. 2,719,820).

Nachtman, Kinghorn and Delfrate are as applied above and incorporated herein.

The process of Nachtman differs from the instant invention because Nachtman does not disclose the following:

a. Wherein the anode has a top and a bottom and the anode is closer to the strip at the bottom than at the top, as recited in claim 9.

b. Wherein the edge portions of the wall of the tin anodes are elongated

generally vertically and the moveable edge masks are elongated generally vertically, as recited in claim 10.

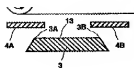
Nachtman teaches that from the guide device the strips pass horizontally (page 1, lines 53-54).

Like Nachtman, *Allen* teaches electroplating a continuous strip (col. 1, lines 63-65). Allen teaches passing the strip **S** vertically through the electrolytic cell **10** (Fig. 1). Allen teaches wherein the anode **16** has a top and a bottom and the anode is closer to the strip at the bottom than at the top (Fig. 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the edge portions and the moveable edge masks described by the Nachtman combination with wherein the anode has a top and a bottom and the anode is closer to the strip at the bottom than at the top; and wherein the edge portions of the wall of the tin anodes are elongated generally vertically and the moveable edge masks are elongated generally vertically because these are conventional electrolytic cell configurations in the art of electroplating a moving metal strip with tin as taught by Allen (col. 1, line 71 to col. 2, line 6; and Fig. 1).

c. Wherein the longitudinal axis of the moving strip facing the front wall does not oppose the moveable edge masks, as recited in claim 11.

Delfrate teaches open spaces between the moveable edge masks (=



) [Fig. 1]. Thus, portions of the longitudinal axis of the moving strip

facing the front wall would have not opposed the moveable edge masks.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDNA WONG whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edna Wong/
Primary Examiner
Art Unit 1795

EW
September 11, 2008